June 29, 2009

Mr. Gary Miller, Remedial Project Manager
U.S. EPA, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: *Draft Updated Screening-Level Ecological Risk Assessment (SLERA)*, dated May 29, 2009 - Comments
Gulfco Marine Maintenance Federal Superfund Site
Freeport, Brazoria County, TX
EPA ID: TXD055144539

Dear Mr. Miller:

The Texas Commission on Environmental Quality (TCEQ) has completed review of the *Draft Updated Screening-Level Ecological Risk Assessment (SLERA)*, dated May 29, 2009 for the above referenced site and have the comments below. The review of this document was completed by the TCEQ Remediation Division, Technical Support Section (Larry Champagne) and the Natural Resource Trustees (National Oceanic and Atmospheric Agency, U.S. Fish and Wildlife Service and Texas General Land Office). TCEQ requests that on future submittals pertaining to this site (and all National Priority List sites) that we be given at least the 30-day review period (from receipt of document) as promised to us by EPA Region 6 Superfund, Ms. Pam Phillips at the January 24, 2006 meeting, whenever possible. This is not an extraordinary request as the comments that are sent to EPA reflect the consolidated (i.e., non-conflicting, non-redundant) comments of up to five different reviewing agencies. Allowing a sufficient review period will enable us to continue to provide these consolidated technical comments to EPA.

General Comments:

1. A sediment Effects Range Medium (ERM) is not a suitable threshold for screening ecological risk. Since an ERM represents the 50^{th} percentile concentration for the ranked sediment Chemical of Potential Ecological Concern concentrations associated with a biological effect, it marks the point above which effects become probable and is not a very protective metric for risk, particularly at the screening level. However, further knowledge of potential sediment cumulative toxicity can be gained by looking at ERM values in combination as a mean quotient in multiple contaminant sites such as this. As such, an ERM quotient would be a more reliable indicator of the potential for risk to exposed ecological receptors. Therefore, we conducted a brief ERM-Quotient analysis by selecting five sediment sample locations from the north marsh area representing

different mixes of COPECs and concentrations using Figure 13 from the Nature and Extent Draft Report, dated March 2, 2009. The results of this analysis (as presented in the related specific comment below) indicate a probability of toxicity to the benthic community in four of the five samples.

2. Further evaluation of the benthic community within a Baseline Ecological Risk Assessment is warranted. This is indicated by the exceedance of TCEQ PCLs and second effects levels for protection of the benthic invertebrate community, the use of 95% Upper Confidence Limits in a SLERA, and the lack of a spatial analysis of the sediment data in relation to evaluation of the benthic community. Additionally, based on the outcome of the mean ERM-Quotient analysis (discussed in the related specific comment), our previous comments on bulk sediment toxicological testing and the development of a sediment toxicity work plan apply and should be reviewed.

3. The use of soil sample data for background comparison to sediment samples is a concern in most cases. While it is understood that there was some justification for the comparison of sediment data to soil data in this particular case (given that many of the wetland sample locations were dry) – there is still a subset of sediment samples that were likely to be wet year-round and thus would not be comparable to soil samples. However, since it is not likely that the screening of sediment samples made a significant difference in the ultimate outcome of the SLERA, it is not necessary to revise this aspect of the report.

4. It is requested that all review comments be addressed in a response prior to or as an accompaniment to the next review document.

Specific Comments:

1. P. 13, Section 2.5.3 Measurement Endpoints: Surface water should also be listed here.

2. P. 16, Section 2.6.2 Sediment and Tables 6-9: There appears to be some confusion over the terminology regarding TCEQ's sediment benchmarks. The midpoint value between the initial and second effects level benchmarks is considered to be the default sediment PCL for protection of the benthic community for a particular COPEC. As stated in the related general comment, site COPEC sediment concentrations should not be compared to the second effects levels (most of which are ERMs) as these are probable effects levels.

3. P. 21, Section 3.1.1 Terrestrial Receptors: It is important that small mammalian receptors of various feeding guilds be represented in a SLERA because of their potential to maximize exposure through their small body weight and narrow home range and because they serve as primary food sources to other receptors. Therefore, it is preferred that both an omnivore that eats mostly invertebrates (e.g., Least shrew) and a herbivore that eats mostly plant matter (e.g., Deer mouse, White-footed mouse) be evaluated as opposed to a single omnivore that eats 50% invertebrates and 50% plant matter. The Least shrew's diet should be evaluated as 90% invertebrates, 10% plant matter, and 8% incidental soil ingestion and the herbivorous mammal's diet should be evaluated as 90% plant matter, 10% invertebrates, and 2% incidental soil ingestion (see the related specific comment).

4. P. 25, Section 3.2 Screening-Level Exposure Estimates: The second sentence of the first paragraph ("For second order carnivorous fish…") needs to be explained and/or clarified. This statement is not reflected in the conceptual site models (Figures 4 and 5) nor does there appear to be any indication that TRVs were based on tissue data. Also, the methodology and results of the fish measurement receptors evaluation should be clarified with the text.

5. P. 27, Section 3.2 Screening-Level Exposure Estimates and related appendices: Regarding incidental soil ingestion, the percent soil ingested can be calculated by dividing the soil ingestion rate by the food ingestion rate, assuming both are in the same units and moisture content (wet weight vs. dry weight; see Issue #8 in TCEQ, 2005). This calculation revealed that the soil ingested by the Deer mouse (0.2%) and the Robin (3.2%) is substantially lower than it should be. It is understood that these rates were obtained from traditional sources for ERA inputs. Nevertheless, these percentages should be higher (2.0% and 5.2%, respectively). All other incidental soil/sediment ingestion percentages for the other evaluated receptors appear reasonable.

6. P. 42, Section 5.1.1 Soil and Sediment and Table 8: TCEQ (2005) guidance appears to have been misused to screen out dibenzo(a,h)anthracene. As this COPEC exceeds its second effects level, it should be retained beyond screening to ensure that disproportionate concentrations within the mixture are not masked by the total. Also, as naphthalene was not included in the list of chemicals of interest in Table 8 and as it is one of the thirteen parent PAH compounds, it is appropriate
to use a proxy value for it in order to correctly utilize the Total PAH benchmark (TCEQ, 2006).

7. P. 44, Section 5.3 Scientific Management Decision Point: We do not concur with the conclusion that adverse ecological risks are unlikely. As part of the SLERA review, select surface sediment data for the marsh area north of Marlin Ave. was evaluated through the mean ERM-Quotient approach as described in Long, et al. (1998). When evaluating the resulting quotients using the methodology of Long and McDonald (1998), the resulting probabilities of toxicity to benthic organisms exhibited a gradient of results that exceeded 20% for multiple locations. It is expected that other sample locations (e.g., 2WSED3) with comparable COPEC mixtures and concentrations would likely exhibit similar probabilities of toxicity. A summary of the mean ERM-Quotient results is provided below.

SAMPLE LOCATION	ERM-QUOTIENT	PROBABILITY OF TOXICITY
2WSED4	0.68	56%
2WSED17	0.55	52%
NB4SE08	0.37	45%
NF4SE13	0.16	28%
NB2SE06	0.04	3%

8. Table C-3 and other related tables: Avian and mammalian TRVs were used for the Rat snake. Across-class extrapolations in order to obtain TRVs are not advisable, particularly when no adjustments are made for body weight differences and no uncertainty factors are used. Much progress on reptile (and amphibian) toxicology has been made over the last

several years and it is suggested that a more thorough search of the literature be conducted. If no appropriate TRVs are found, then a qualitative evaluation of risk to this class of receptors should be made.

References:

Long, E.R., L. J. Field and D.D. McDonald. 1998. Predicting Toxicity in Marine Sediments with Numerical Sediment Quality Guidelines. Environmental Toxicology and Chemistry, Vol. 17, No. 4, pp. 714–727.

Long, E.R. and D.D. McDonald. 1998. Perspective: Recommended Uses of Empirically Derived, Sediment Quality Guidelines for Marine and Estuarine Ecosystems. Human and Ecological Risk Assessment, Vol. 4, No. 5, pp. 1019-1039.

TCEQ. 2005. Position Paper on Common Issues Encountered During the Review of Ecological Risk Assessments. September. http://www.tceq.state.tx.us/remediation/eco/eco.html

TCEQ. 2006. Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised). January.

If you have any questions please, contact me at (512) 239-6368 or Larry Champagne at (512) 239-2158.

Sincerely,

Ludmila Voskov, P.G., Project Manager
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Texas Commission on Environmental Quality

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